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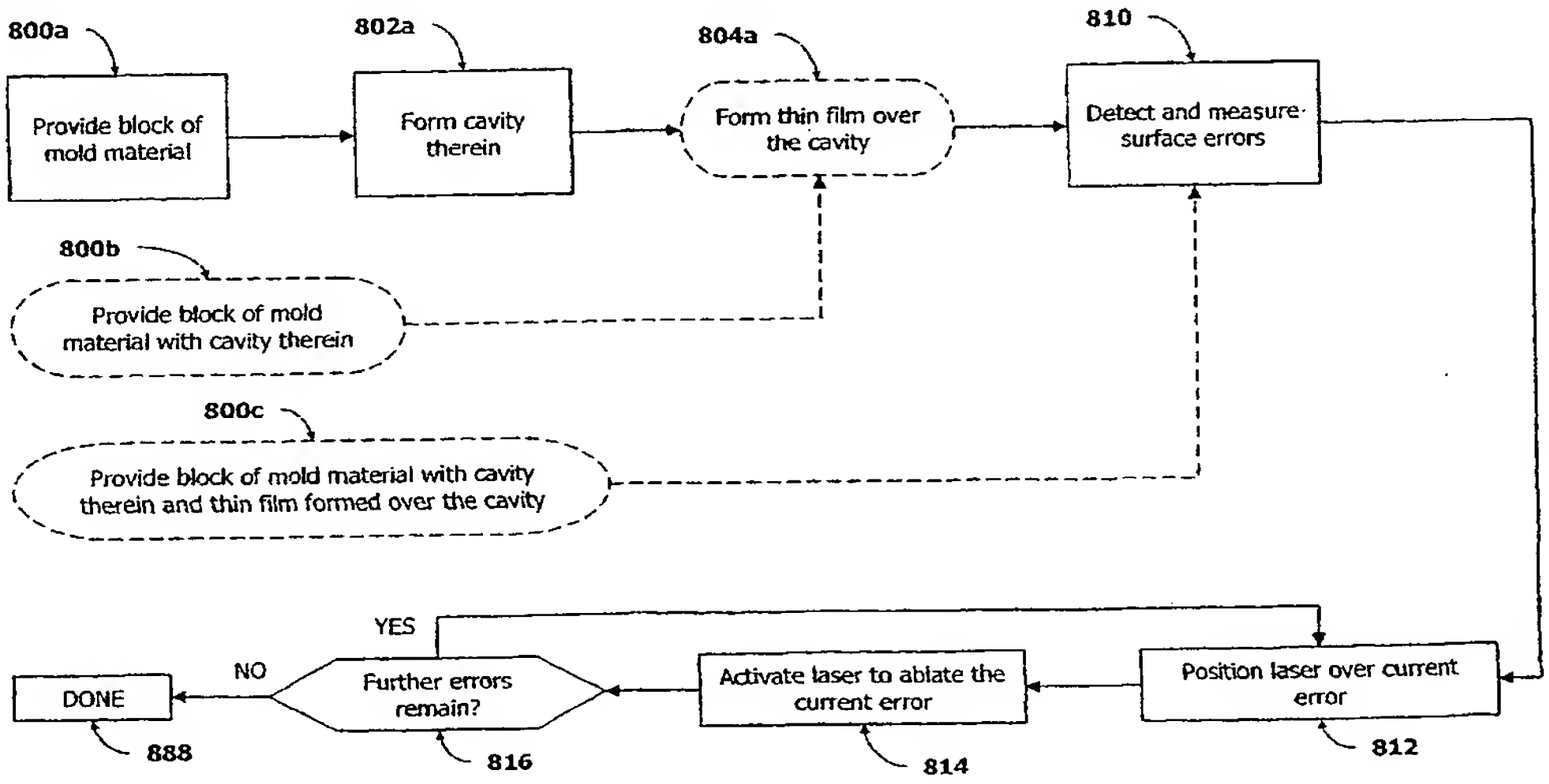
(54) Title: MOLD FOR OPTICAL COMPONENTS



(57) **Abstract:** A method is provided for manufacturing a high-precision mold whereby a feature matching a desired feature design is carved into a hard mold material (41) using, for example, a diamond grinding wheel and/or a diamond turning point. Inherent imprecision and errors (49) introduced by the use of the grinding wheel/turning point are measured to determine deviations from the desired feature design. An ultrafast shortpulse laser is then activated to desirably ablate the deviations, thereby correcting the errors and conforming the feature to the desired shape. Furthermore, a thin film (1602) may be formed over the feature either prior to or after the laser ablation process, where the error measurement and laser ablation processes detects and ablates errors on the surface of the thin film, respectively. Additionally, the laser ablation process may be applied directly to, for example, an optical lens (1400) formed from an imprecise mold to remove any errors and imperfections thereon.

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